

ORIGINAL PAPER

Domestic violence detection amid the COVID-19 pandemic: the value of the WHO questionnaire in emergency medicine

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Summary

Background: Gender-based violence affects 35–45% of women worldwide, mostly coming from domestic violence. A good screening procedure in clinical practice is useful, but WHO does not advise universal screening, recommending further research.

Aim: (i) To report the frequency of domestic violence cases among admissions to the Emergency Room of a major Italian Hospital in 2020, including during complete 'Lockdown' period; (ii) to document acute and chronic health effects of domestic violence and (iii) to assess usefulness of the WHO screening as a tool for uncovering cases which would otherwise remain hidden.

Design and methods: A database containing all the information recorded for each of 19 160 patients in the Emergency Room was constructed by a keyword search ('violence', 'assault', 'trauma') to filter the data and retrieve cases of violence in the period between 1 January and 2 June 2020. The self-administered questionnaire of the WHO Multi-country Study on Women's Health and Domestic Violence against Women was used in women referred to the emergency room for any cause, excluding trauma.

Results: A recent history of domestic violence was disclosed by 22.67%, after completing the WHO questionnaire. Of those not participating in the survey, diagnosis of domestic violence was only 0.6% (128/19 160).

Conclusion: Power of detection of domestic violence by the WHO questionnaire is very high, while the frequency of occurrence of these events in this population was considerable. Seemingly, it elicits the responsiveness to the topic of the volunteer interviewees. Its use should be firmly recommended, reasonably, while Covid-19 pandemic is affecting health, rights and response.

Background

Gender-based violence affects 35–45% of women worldwide.¹ In most cases, violence comes from the partner or family context: intimate partner violence (IPV) or domestic violence.

This is significantly related to a worsening of physical, sexual, reproductive and mental health.² The direct consequences of violence are physical injuries, psychological trauma and death,^{1,3,4} the indirect ones can affect the victim in the

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medium or long term, resulting in chronic disease and disabilities.

Women who suffer violence at the hands of their partner, former partner or family members turn frequently to urgent and emergency care units, as most direct consequences of domestic violence are non-fatal physical injuries.⁵ It has been shown that women who have suffered physical or sexual violence from their partner are in poorer general health than women without a history of IPV. They complain of chronic pain, memory loss, limitations in walking and doing daily activities,² headaches, chronic pelvic pain, back pain, abdominal pain, irritable bowel syndrome, other gastrointestinal disorders,^{6,7} anxiety and depression.^{8,9} Some of the indirect pathogenic pathways are mediated by responses to chronic stress, both neuro-endocrinological and immunological,¹⁰ which result in changes in structures, such as in the amygdala and hippocampus. This may lead to the onset of psychiatric disorders, but also immune dysfunctions (with increased risk of infectious and neoplastic diseases), cardiovascular (hypertension)¹¹ and metabolic (insulin resistance) disease.¹ In addition to stress-related mechanisms, increase of behavioural risk factors such as those related to the abuse of alcohol, medications, or tobacco and other drugs^{9,12,13} are involved (intermediate pathways).

It has been discovered that men who use violence against their partners are more likely to engage in HIV-risky behaviours, such as having several sexual partners, (sex workers included), and are more likely to contract sexually transmitted infections (STIs) than non-abusing partners.^{14,15} As a consequence, women who are sexually assaulted by their partner are at significant risk of sexually transmitted diseases and of a worsening of their reproductive health.¹⁶

The detection of domestic violence by health care providers can be the first step to offer women concrete possibilities of escaping violence. The screening can be 'universal', i.e. asking questions about possible violence to all women who come into contact with health services, or with evidence of worrisome features. Nevertheless, WHO does not advise 'universal screening',¹⁶ but the validity of this recommendation is not absolute, and WHO itself has recommended that further research should be done on it. However, some institutions like the American College of Obstetricians and Gynaecologists support universal screening.¹⁷

Aim

This study aimed to ascertain the frequency of cases of domestic violence among the admissions to the Emergency Room of the University Hospital 'Gaspere Rodolico – San Marco' in Catania, Sicily (Italy) during a period of 5 months, including the complete COVID-19 'lockdown' period. Moreover, acute and chronic health effects of domestic violence, its symptoms and signs associated with domestic violence are described. The third goal was testing usefulness of the WHO recommended universal screening as a tool for uncovering cases which would remain covert with the current, unfocused triage and medical interview set-up.

Design and methods

Data collection

We had access to a database containing all the information recorded for each patient. A keyword search ('violence', 'assault', 'trauma' and others) in diagnosis, history and physical

examination text, was carried out, to filter the data and retrieve cases of violence at the hands of other people, in the period between 1 January and 2 June 2020.

Questionnaire design

We developed a questionnaire with three sections. The first section included gender, date of birth and medical history, pregnancies and/or miscarriages, nutritional status, alcohol consumption, smoking. The second section was adapted from Section II – 'General Health' of the questionnaire used in the WHO Multi-country Study on Women's Health and Domestic Violence against Women.² For the third section 'Domestic Violence', the three brief directed questions that can detect a large number of women who have a history of partner violence¹⁸ were used.

At the end of the questionnaire, the patient was asked directly whether the reason for accessing the Emergency Room was domestic violence, and by this criterion, the two comparison groups were defined. All of the data were anonymous.

The questionnaires were proposed for volunteer participation to all the women on working days between 14 July and 24 August 2020, when admitted to the Emergency Room. Criteria for inclusion were: female, aged from 14 to 65 years, who had requested access to the Emergency Room, for any non-trauma reason. Seventy-five women meeting the inclusion criteria agreed to participate in the study by completing the questionnaire.

Method of administration

The questionnaire was provided to all the patients (universal screening) only after they had been taken into hospital care, and were then self-administered in a protected environment and without the presence of any accompanying person.

Data processing

Based on the date of admission, we identified two different periods: one, which we called 'Lockdown', from 10 March to 3 May 2020, and another, 'Non-Lockdown', which comprised from 1 January to 9 March 2020, and from 4 May to 2 June 2020. Age, nutritional status, tobacco consumption, alcohol consumption, abortion history, daily activities impairment, chronic pain, memory disorders, gastrointestinal disorders, psychosomatic symptoms, anxious and/or depressive symptoms, previous hospitalizations were recorded. A score of 0, 1 or 2 was given to each answer or group of answers referring to the same area of health. 0 corresponded to 'absence' of the disorders or risk factors, 1 to 'moderate presence' of the risk factors or disorders and 2 to 'severe presence' of the disorders or risk factors. In the resulting score, lower values corresponded to a minor impairment of the functions under consideration or to a lower exposure to risk factors. The frequencies of domestic violence history cases were measured (at least 1 'Yes' out of the three questions in section III) and two groups were identified: 'patients exposed to domestic violence' and 'patients not exposed to domestic violence'.

Statistical analysis

Student's t-test was used to compare the scores of the two groups, i.e. patients exposed to domestic violence vs. patients not exposed to domestic violence, for the period between 14 July and 24 August 2020, for the patients assessed also by the

Table 1. Domestic violence in the 'Lockdown' and 'Non-Lockdown' periods

	Domestic violence/Other violence admissions		
	Females	Males	Total
Non-lockdown	9/44 (20.45%)	1/60 (1.67%)	10/104 (9.62%)
Lockdown	3/10 (30.32%)	2/13 (15.38%)	5/23 (21.74%)

The 'N-1' chi-squared test and the confidence interval calculated were used for the comparison of proportions by the MedCalc calculator. In males, $P = 0.4478$, not significant; in females, $P = 0.0209$, significant.

questionnaire. The frequencies of the different variables between the two groups were compared using χ -squared and Fisher's exact tests.

Results

Admissions due to violence by others and domestic violence

In the period between 1 January and 2 June 2020, 19 160 patients accessed the ER. Of these, those for whom the referral was due to violence by others were 128. While during the lockdown the percentage of males in the total number of victims of violence decreased compared to the non-lockdown period (non-lockdown: 57.14%; lockdown: 43.48%), that of females slightly increased (non-lockdown: 41.9%; lockdown: 43.48%).

Of the 128 cases of violence by others, among the other types of violence, it was possible to recognize 15 as 'Domestic Violence': 12 females (80%) and 3 males (20%).

During the lockdown period, the percentage of admissions due to domestic violence in the total number of victims of violence by others increased (Table 1).

Perpetrators of domestic violence

In the three cases with male victims, the attackers were the brother (1), 'a family member' (1) and 'a person known in the family' (1). In the 12 cases with female victims, the perpetrators were: partner (8), former partner (1), son (1), father (1), while one case was reported as 'Codice Rosa', the path dedicated to women and men claiming to be victims of violence, abuse or stalking. In total, cases of 'Intimate Partner Violence', i.e. violence by partners or former partners, account for 75% of domestic violence against women cases. No cases of IPV occur among men.

Age

The average age of female patients, who asked to access the Emergency Room because of violence by others, is 39.5 ± 10.5 years, while the average age of male patients is 45.9 ± 8.2 years, without a significant difference.

Discharge diagnosis

The discharge diagnosis among victims of violence at the hands of other people is a traumatic injury in 90.62% of cases, and a mental or psychosomatic disorder in 9.38% (Table 2). A similar scenario is seen among victims of domestic violence.

Table 2. Discharge diagnosis among victims of violence at the hands of other people is a traumatic injury in 90.62% of cases, and a mental or psychosomatic disorder in 9.38%

	Number	%
Contusion	10	66.7
Abrasions	5	33.35
Head injury	3	20.00
Localized pain	1	6.67
Reactive anxiety	1	6.67
Hematoma	2	13.34
Ecchymosis	2	13.34
Pleural effusion	1	6.67

Table 3. Mean scores: declared domestic violence vs. not declared domestic violence ($t = -1.961$); on a scale from zero to 16, where the higher the number the greater the presence of unfavourable factors for the quality of life, there is a significant difference of the averages between the two groups, i.e. there was a higher score in the women who had declared recent history of domestic violence ($P = 0.05$)

	Mean score
Domestic violence ($n = 17$)	6.53 ± 2.68
Not domestic violence ($n = 58$)	4.87 ± 3.17

History of domestic violence—from the questionnaire

In the period between 14 July and 24 August 2020, assessing the 75 women who participated in the survey, 58 of them (77.33%) did not report suffering—or having suffered—from domestic violence, while 17 of them (22.67%) disclosed a recent history of domestic violence. The two groups 'Declared Domestic Violence' and 'Not Declared Domestic Violence' are comparable by age ($P = 0.80$) and by BMI (overweight/obese, $P = 0.93$).

Medical history elements, with respect to 'absence' or 'presence' of the disorders in the two groups, with and without history of domestic violence, show that highest percentages, among women with a recent history of domestic violence, of abortions, daily activities impairment ($P = 0.0478$), psychosomatic symptoms and anxious-depressive symptoms ($P = 0.0511$) were present.

Score

On a scale from 0 to 16, where the higher the number the greater the presence of unfavourable factors for the quality of life, the two groups presented the averages shown in Table 3. There was a higher score for the women who had declared recent history of domestic violence ($P = 0.05$).

At last, by direct question, assessing the women who participated in the survey, 22.67% disclosed a recent history of domestic violence, after having filled the questionnaire. Looking at the percentage of women not participating in the survey, the diagnosis or report of domestic violence was significantly much lower: 0.67% (128/19 160 cases): $P < 0.0001$.

Discussion

The cases of domestic violence detected in the first phase of this study mainly concern women (80%), and exclusively women if Intimate Partner Violence is considered; these data are in line with the expected results. In the second phase of this study, it was decided to use a universal screening tool, including

self-administered questionnaires in a protected environment, away from any accompanying people. This procedure allowed greater disclosure by women with a recent history of domestic violence, as reported in other studies.^{19,20} Through screening, the amount of domestic violence identified greatly increased, compared with the months before the administration of the questionnaire: from 0.67 to 22.67% of women in the same age group who accessed the Emergency Room.

All cases in the first phase were recognized as the reason for access to the ER, while in the second phase the results are almost entirely due to screening (in only one case domestic violence was the reason for the request of admission). During the lockdown period, the case ratio of domestic violence to violence by others increased. The increase concerned both sexes, but the data are difficult to interpret, as the number of cases is limited. During the lockdown, the percentage of male victims of violence by others decreased, while those of women increased, in comparison with the non-lockdown period. This variation, albeit not statistically significant, could be in line with the hypothesis that a large number of cases have not been properly recorded; around the world, the lockdown had a significant impact on the global increase in domestic violence.^{21,22}

Clinical pictures and warning signs

From the first phase of the study, it emerged that the most frequent discharge diagnoses among survivors of domestic violence concern traumatic injuries, accompanied by symptoms of altered mental status. Possible indirect signs to pay attention to, in addition to trauma, emerged from the second phase of the study. From the analysis of the answers to the questionnaire, although limited by the non-participation of a significant percentage of women who accessed the ER, it was observed that the average score, given by the sum of the medical history pertinent positives and the symptoms associated with domestic violence, is higher in women exposed to violence in the last year than in women who have not been abused. These symptoms are psychosomatic (headache, sleep disorders, tremor, dizziness, lack of appetite), and anxious-depressive (fear, nervousness, lack of lucidity, feeling of unhappiness). A weakly significant association between positive abortion history (not included in the score) and domestic violence was also found. The following considerations can be derived from Phase B results:

- i. The score resulting from the answers to the questionnaire could be a domestic violence risk index, as it is directly proportional to the probability of domestic violence itself.
- ii. It seems clear that the preliminary administration of this questionnaire facilitates and highlights the information on domestic violence.
- iii. To confirm this assessment, in the absence of screening and of 'direct' symptoms, the data on violence remains hidden.
- iv. It seems, given the high percentage of women with a positive history of domestic violence accessing the Emergency Room, that the service is of not only medical importance, but it also represents an implicit request for help and support, not sufficiently provided by other institutions.

Currently, there is a shortage of published information,²³ and the main reference source is a magazine investigation.²⁴ Calls for action requires a greater scientific, medical and political commitment.²⁵ Some contribution relies in digital approaches to the topic,²⁶ without facing directly persons and problems claiming a better understanding of family violence

during the pandemic by providing surveillance, i.e. via tweets. Also for this problem, a solidarity support from community by additional resources provided by governments in the first surge of this pandemic in regard of health professionals is particularly valuable.^{27,28}

According to our study, the percentage of women with a positive history of domestic violence in the ER is high and, at present, scarcely recognized. It is necessary, therefore, to implement screening protocols, universal or at the detection of warning signs: traumatic injuries, psychosomatic symptoms and anxious-depressive symptoms. Since domestic violence affects women's health, directly and indirectly, it should be considered as other risk factors usually included in any medical history.

Conclusion

The power of detection of domestic violence by the WHO questionnaire is very great, and the frequency of occurrence of these events in our population is high. Seemingly, it elicits a greater responsiveness of the interviewees and its use should be firmly recommended, reasonably while Covid-19 pandemic is affecting health, rights and response.

Conflict of interest. Authors assure, under reasonable request, the full availability of data underlying the research results described in the article, under the European GDPR rules. The study was funded by departmental resources. No conflict of interest is present for any of the Authors.

References

1. Devries KM, Mak JY, García-Moreno C, Petzold M, Child JC, Falder G, et al. The global prevalence of intimate partner violence against women. *Science* 2013; **340**:1527–8.
2. García-Moreno C, Jansen HA, Ellsberg M, Heise L, Watts CH, WHO Multi-country Study on Women's Health and Domestic Violence against Women Study Team. Prevalence of intimate partner violence: findings from the WHO multi-country study on women's health and domestic violence. *Lancet* 2006; **368**: 1260–9.
3. Heise L. Violence against women: the hidden health burden. *World Health Stat Q* 1993; **46**:78–85.
4. Fougeyrollas-Schwebel D, Jaspard M. Compter les violences envers les femmes. Contexte institutionnel et théorique de l'enquête ENVEFF. *L'Harmattan. Cahiers du Genre* 2003; **35**: 45–70.
5. Sheridan DJ, Nash KR. Acute injury patterns of intimate partner violence victims. *Trauma Violence Abuse* 2007; **8**:281–9.
6. Leserman J, Drossman DA. Relationship of abuse history to functional gastrointestinal disorders and symptoms: some possible mediating mechanisms. *Trauma Violence Abuse* 2007; **8**:331–43.
7. Chrousos GP, Gold PW. The concepts of stress and stress system disorders. Overview of physical and behavioral homeostasis. *JAMA* 1992; **267**:1244–52.
8. Campbell J, Jones AS, Dienemann J, Kub J, Schollenberger J, O'Campo P, et al. Intimate partner violence and physical health consequences. *Arch Intern Med* 2002; **162**:1157–63.
9. Campbell JC. Health consequences of intimate partner violence. *Lancet* 2002; **359**:1331–6.
10. Miller AH. Neuroendocrine and immune system interactions in stress and depression. *Psychiatr Clin North Am* 1998; **21**: 443–63.

11. Stene LE, Jacobsen GW, Dyb G, Tverdal A, Schei B. Intimate partner violence and cardiovascular risk in women: a population-based cohort study. *J Womens Health (Larchmt)* 2013; **22**:250–8.
12. Ellsberg M, Jansen HA, Heise L, Watts CH, Garcia-Moreno C; WHO Multi-country Study on Women's Health and Domestic Violence against Women Study Team. Intimate partner violence and women's physical and mental health in the WHO multi-country study on women's health and domestic violence: an observational study. *Lancet* 2008; **371**:1165–72.
13. Breiding MJ, Black MC, Ryan GW. Chronic disease and health risk behaviors associated with intimate partner violence-18 U.S. states/territories, 2005. *Ann Epidemiol* 2008; **18**:538–44.
14. Santana MC, Raj A, Decker MR, La Marche A, Silverman JG. Masculine gender roles associated with increased sexual risk and intimate partner violence perpetration among young adult men. *J Urban Health* 2006; **83**:575–85.
15. Raj A, Santana MC, La Marche A, Amaro H, Cranston K, Silverman JG. Perpetration of intimate partner violence associated with sexual risk behaviors among young adult men. *Am J Public Health* 2006; **96**:1873–8.
16. WHO. *Responding to Intimate Partner Violence and Sexual Violence against Women: WHO Clinical and Policy Guidelines*. Geneva, World Health Organization, 2013.
17. ACOG Committee Opinion No. 518: intimate partner violence. *Obstet Gynecol* 2012; **119**:412–7.
18. Feldhaus KM, Koziol-McLain J, Amsbury HL, Norton IM, Lowenstein SR, Abbott JT. Accuracy of 3 brief screening questions for detecting partner violence in the emergency department. *JAMA* 1997; **277**:1357–61.
19. O'Doherty L, Hegarty K, Ramsay J, Davidson LL, Feder G, Taft A. Screening women for intimate partner violence in health-care settings. *Cochrane Database Syst Rev* 2015; **2015**:CD007007.
20. Chisholm CA, Bullock L, Ferguson JEJ 2nd. Intimate partner violence and pregnancy: screening and intervention. *Am J Obstet Gynecol* 2017; **217**:145–9.
21. Ghoshal R. Twin public health emergencies: Covid-19 and domestic violence. *Indian J Med Ethics* 2020; **5**:1–5.
22. Moreira DN, Pinto da Costa M. The impact of the Covid-19 pandemic in the precipitation of intimate partner violence. *Int J Law Psychiatry* 2020; **71**:101606.
23. Evans ML, Lindauer M, Farrell ME. A pandemic within a pandemic - intimate partner violence during Covid-19. *N Engl J Med* 2020; **383**:2302–4.
24. Fielding S. In Quarantine with an Abuser: Surge in Domestic Violence Reports Linked to Coronavirus. *The Guardian*. April 3, 2020 (<https://www.theguardian.com/us-news/2020/apr/03/coronavirus-quarantine-abuse-domestic-violence>).
25. Cullen W, Gulati G, Kelly BD. Mental health in the COVID-19 pandemic. *QJM* 2020; **113**:311–2.
26. Xue J, Chen J, Chen C, Hu R, Zhu T. The hidden pandemic of family violence during COVID-19: unsupervised learning of tweets. *J Med Internet Res* 2020; **22**:e24361.
27. Donnelly SC. Post COVID Syndrome (PCS) and healthcare workers: who cares for the carers? *QJM* 2020; **113**:611.
28. Evans DP. COVID-19 and violence: a research call to action. *BMC Womens Health* 2020; **20**:249.